

REMARKS

The claims are 1 to 7.

The above amendment is responsive to points set forth in the Official Action.

Claims 1-4 have been rejected under 35 U.S.C. 102 (b) as being anticipated by Elias et al.'s 2000 article ("Elias").

The rejection contends that the method for preparation of the particles of a hydrogen fluoride treated artificial quartz crystal in claim 1 is identical with or substantially similar to the method disclosed in Elias and, thus, the claimed particles are anticipated by Elias.

This rejection is respectfully traversed.

Elias discloses cytotoxic and transforming effects of silica particles with different surface properties in Syrian hamster embryo (SHE) cells, a use unrelated to photocatalysts.

The artificial quartz crystal used in the present invention is a "synthetic quartz crystal" which is a synthesized one having a crystal structure the same as that of natural quartz crystal.

Applicants have discovered that the particles of such "synthetic quartz crystal", after HF treatment, provide good photocatalytic activity when irradiated with activating light, for example, UV.

According to the description of Elias on page 411, right column, lines 23-29, quartz particles of Min-U-Sil 5 or Q10 were etched with hydrofluoric acid.

The Min-U-Sil 5 quartz of Elias is a natural quartz. Such natural quartz materials are unsuitable for use herein and are excluded from the present claims by the term "artificial".

The Q10 quartz of Elias consists of quartz particles having an external amorphous "Beilby layer". The presence of the Beilby layer would inhibit or prevent activation.

The reason for using particles of the artificial quartz crystal herein is to activate the surface of quartz particle in the manner as described in paragraph [0023] of the present specification.

The surface state of Elias' starting quartz particles of Min-U-Sil 5 and Q10 is not the state required by the presently claimed method and the treatment of these particles with hydrogen fluoride would not have same photocatalytic activity as the quartz particles of the present method.

Thus, the presently claimed photocatalyst and method for preparation thereof are not anticipated by Elias.

Accordingly, the rejection on anticipation over Elias is untenable.

Claims 1, 5 and 6 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Elias in view of Fujii (US 2002/0170815).

The rejection contends that it would have been obvious to one of ordinary skill in the art at the time of the invention was made to employ a photocatalyst such as Elias' in a detoxification context such as Fujii's, as doing so would involve reasonable expectation of success.

As stated above, Elias discloses cytotoxic and transforming effects of silica particles with different surface properties in SHE cells and does not suggest use of the silica particles as photocatalysts. Thus, one of ordinary skill in the art at the time the invention was made would not be motivated to employ Elias's silica particles as a photocatalyst, without the disclosure of the present application.

Further, as discussed above, the hydrogen fluoride treated quartz or silica particles of Elias would not be expected to have a surface activity similar to the photocatalyst of the invention for reasons discussed above. Therefore, even if the quartz particles of Elias were to be employed as a photocatalyst in a detoxification context such as Fujii's, such detoxification would not be expected to succeed.

Claims 5 and 6 are even further remote from the reference teachings.

No further issues remaining, allowance of this application is respectfully requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact undersigned at the telephone number below.

Respectfully submitted,

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July 21, 2011